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ABSTRACT

Supervisory behaviors considered effective by medical students were identified and organized into descriptive categories. A second study objective was to compare the supervisory behaviors of family physicians and those of behavioral scientists. Eighty-four sophomore medical students completed a critical incident report form at the end of an interviewing practicum session during which they were co-supervised, in groups of four, by a family physician and behavioral scientists. Working independently, 11 judges sorted the reports of effective and ineffective supervision behavior by physicians and behavioral scientists into 11 categories. Using joint proportion matrices and principal component analysis, source variables underlying the observed behaviors were identified. The requirements for effective supervision by physicians were to model the physician's role, teach clinical problem solving, provide balanced feedback, suggest how to improve interviews, structure the task, prod critical thinking, and confront defensiveness. The supervision requirements for behavioral scientists were to teach interviewing and interpersonal skills, provide constructive criticism, discuss patient behavior, convey personal support, promote change, and facilitate group interaction. (Author/SW)

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Requirements for Effective Interviewing Supervision

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Abstract

Much has been written about interviewing supervision but reports of empirical studies are rare. Rather than prescribing supervision behavior based on a theory, this report describes effective supervision based on behavioral reports by medical students. This study empirically identified the supervision behaviors that students considered effective and organized these behaviors into categories representing the important requirements for effective supervision. Also, the study compared the requirements for effective supervision by family physicians and behavioral scientists. Eighty-four sophomore medical students completed a "critical incident" report form at the end of an interviewing practicum session during which they were co-supervised, in groups of four, by a family physician and a behavioral scientist. Working independently, eleven judges sorted the reports of effective and ineffective supervision behavior by physicians and behavioral scientists into categories. The eleven sets of categories were statistically pooled into joint proportion matrices. Principal component analyses of the matrices extracted the source variables that underlie the observed behaviors and constitute the important requirements of supervision. The requirements of effective supervision by physicians were to model the physician's role, teach clinical problem-solving, provide balanced feedback, suggest how to improve interviews, structure the task, prod critical thinking, and confront defensiveness. The requirements for effective supervision by behavioral scientists were to teach interviewing and interpersonal skills, provide constructive criticism, discuss patient behavior, convey personal support, promote change, and facilitate group interaction. The findings can be used to orient new faculty to the supervision task and to structure faculty development sessions for veteran supervisors.

Requirements for Effective Interviewing Supervision

Providing supervision to students practicing interviewing and interpersonal skills is a common role among family medicine faculty. The present study sought to identify supervisory behaviors considered effective by medical students and to organize these behaviors into descriptive categories representing the important requirements for effective supervision. In addition, the study compared the supervisory behavior of family physicians to that of behavioral scientists in order to examine their respective roles in supervision of medical students practicing interviewing and interpersonal skills.

Method

The sample consisted of 84 second year medical students participating in a required 360-hour course on physical diagnosis, medical interviewing, and ambulatory care. The course included a 36-hour interviewing and interpersonal skills practicum. Students met in groups of four, for 12 three-hour sessions during a nine month period, to review videotapes of their interviews with simulated patients. The students also provided written medical records for review on each patient. Each group of four students was co-supervised by a family physician and a behavioral scientist who remained the same for the entire nine months.

The critical incidents technique was used to collect reports of supervisory behavior through a 4-page report form developed using Flanagan's (1954) guidelines. Each page requested a single incident: physician effective behavior, physician ineffective behavior, behavioral scientist effective behavior, and behavioral scientist ineffective behavior.

The incident reports were collected during the fourth meeting of each practicum group. With 20 minutes remaining in the 3-hour session, a secretary entered the room and reminded the supervisors of the study. The supervisors and the secretary then left the room while the students recorded the incidents on the report form. Each student returned the form, without identifying information, to the secretary.

The data analytic procedures were designed to empirically extract the important requirements of effective supervision from the reports of critical supervisory behaviors. Each incident was typed on an index card. There were four sets of cards corresponding, respectively, to effective and ineffective behavior of physicians and behavioral scientists. Rather than convening a panel of judges to work together on the sorting task, eleven judges worked independently. The judges were instructed to sort each of the four sets of incidents into mutually exclusive, jointly exhaustive categories on the basis of the supervisory behavior. The instructions carefully avoided suggesting a particular number of categories or what type of categories were expected. After categorizing the behaviors, each sorter re-examined the categories and refined them so that all items in each category were homogeneous. Finally, each sorter assigned a title to each category.

The eleven sets of subjectively-derived manifest categories were statistically pooled to create a joint proportion matrix. The joint proportion matrix was analyzed with the principal component analysis subprogram PA1 of the Statistical Package for the Social Sciences (Nie, Hull, Kenkins, Steinbrenner & Brent, 1975). Considering the large size of the matrix (84 x 84), it was anticipated that using latent roots greater than one as the criterion for number of components would result in numerous small, trivial components. Accordingly, the scree test was used to indicate the effective number of large, substantive components accounting for most of the variance while minimizing the number of components. To enhance interpretability, the components,

were rotated to simple structure using varimax criterion. The resulting component loadings were treated as latent category membership coefficients. The latent categories were named after examining the titles of the sorters' manifest categories for each behavior that had a category membership coefficient exceeding .30. The titles of these manifest categories were synthesized to name the latent category.

The categories of this hypothetical latent set represented the source variables underlying the observed behaviors. Collectively, these categories constituted the important requirements for effective supervision of beginning practicum students by physicians. This data analytic procedure then was applied to the other three sets of reports: physician ineffective, behavioral scientist effective, and behavioral scientist ineffective.

Results

Physician Effective Behaviors

The 11 sorters used from five to 17 categories ($\bar{x}$ = 10.4; S.D. = 2.4) to group the 84 critical behaviors reported by students as effective supervisory acts by their physician supervisors. Principal component analysis of the joint proportion matrix constructed from these 11 sets of manifest categories extracted 21 components with latent roots exceeding 1.0. They accounted for 82.6% of the variance. As anticipated, inspection of the 21 components revealed numerous small, trivial components. In fact, 10 of the 21 components had only one or two behaviors loading .30 or higher. The scree test indicated seven substantive components. The seven components accounted for 56.6% of the total variance. Accordingly, the matrix was reanalyzed with PA1 solving for seven components. The resulting seven latent categories were titled and interpreted.

Physician Ineffective Behaviors

Of the 84 report forms, 30 stated that the physician had not displayed any ineffective behavior during that practicum session. Sixteen of these forms did report an ineffective behavior by the behavioral scientist co-supervisor. Therefore, it was assumed that lack of a report did not reflect an uncritical observer. Only the 54 forms reporting an ineffective behavior were analyzed. The 11 sorters used from four to 14 categories ($\bar{x}$ = 9.36; S.D. = 1.69) to group the 54 behaviors. Principal component analysis of the joint proportion matrix constructed from the 11 sets of manifest categories extracted 13 components with latent roots exceeding 1.0. The 13 components accounted for 77% of the variance. Based on the scree test, a forced seven component solution was computed with PA1. The seven components accounted for 61.3% of the total variance.

Behavioral Scientist Effective

The 11 sorters used from six to 13 categories ($\bar{x}$ = 9.6; S.D. = 1.25) to group the 84 critical behaviors reported by students as effective supervisory behavior by behavioral scientists. Principal component analysis of the joint proportion matrix constructed from the 11 sets of manifest categories extracted 26 components with latent roots exceeding 1.0. The 26 components accounted for 99.1% of the variance. Based on the scree test, a seven component solution was computed. The seven components accounted for 59.9% of the total variance.

Behavioral Scientist Ineffective Behaviors

Of the 84 student responses, 31 stated that the behavioral scientist had not displayed an ineffective behavior during that practicum session. Seventeen of these reports noted an ineffective behavior in the physician supervisor. Therefore, it was assumed that lack of a report did not reflect an uncritical observer. Only the 53

reported ineffective behaviors were analyzed. The 11 sorters used from four to 14 categories ($\bar{x}$ = 10.6; S.D. = 2.3) to group the 53 behaviors. Principal component analysis of the joint properties matrix constructed from the 11 sets of manifest categories extracted 15 components with latent roots exceeding 1.0. The 15 components accounted for 77.4% of the variance. Based on the scree test, a six component solution was computed. The six components accounted for 53.2% of the total variance.

Table 1 shows the categories within each of the four groups, along with the percent of variance accounted for by each category and the number of behaviors in each category. A detailed description of each category appears in the Appendix.

Discussion

What did medical students consider requirements for effective practicum supervision? For physician supervisors, the primary requirements were to model the physician's role, teach clinical problem-solving, provide balanced feedback, and suggest how to improve interviews. Additional categories of effective behavior were structuring the task, prodding critical thinking, and confronting defensiveness. Modeling was important to students in beginning practicum because they were struggling to adopt the physician's role. The students perceived physicians talking about pertinent experiences from their practices as an effective means of expanding students' interviewing repertoire. Yet, "storytelling" or discussing irrelevant experiences was clearly judged to be an ineffective behavior. The students also valued didactic teaching of clinical problem-solving strategies. Students needed more than evaluation of their performance. They wanted to learn cognitive schemes as well as specific behaviors that increased their competence. Moreover, they wanted the physician to structure their learning by identifying essential objectives and skills. When viewing their taped interview, students appreciated balanced feedback that attended to both their strengths and weaknesses from an informed perspective. They wanted supervisors to pay close attention to their tapes and carefully evaluate their write-ups. Even so, students did not wish to be overly dependent on supervision. Accordingly, they prized behaviors that promoted critical thinking or confronted defensiveness.

Students reported different requirements for effective supervision by behavioral scientists. The primary requirements were to teach interpersonal and interviewing skills, provide constructive criticism, and offer positive reinforcement. Students also valued behaviors that conveyed personal support or facilitated group discussion. With regard to teaching, students considered instruction in understanding patient behavior as a requirement of effective supervision. Students valued learning how to understand a patient's character. On the other hand, supervisor characterizations of patients that seemed stereotyped or limiting were judged as quite ineffective behavior. In addition to instruction in the "content" of patient behavior, students liked behaviors that taught interviewing "process" skills. They sought instruction in interviewing techniques and wanted encouraging feedback on their taped interviews. In their view, effective feedback was accurate, specific, and reinforcing. Besides feedback concerning professional skills, students valued behaviors that were supportive of them as individuals. Students appreciated acts that increased their self-confidence or reassured them. This support facilitated student comfort in adopting and experimenting with the student-physician role. Students also prized efforts to facilitate a "group experience" among the four students in a practicum.

Contrasting the student-perceived critical requirements of physician versus behavioral scientist supervisors revealed three major differences. First, both

supervisors provided instruction but generally on different topics. Physicians taught biomedical information and clinical problem-solving. Behavioral scientists taught interviewing and psychosocial assessment of patients. A further difference was that physicians appeared to structure the discussions while behavioral scientists facilitated active group participation. As topics were discussed, physicians seemed to stress biomedical competence while behavioral scientists stressed psychosocial sensitivity.

Second, both supervisors provided students with feedback on their taped interviews. When they differed, it appeared that physicians tended to identify deficiencies, demand excellence, and confront excuses. Behavioral scientists seemed more likely to offer reinforcement and encouragement. Admittedly, the students wanted feedback on their successes and failures from both supervisors. When they did not encounter this balance, students tended to perceive physician feedback as harsh and behavioral scientist feedback as overly kind.

The third difference between supervision requirements of physicians and behavioral scientists involved helping supervisees make the transition from medical student learning facts to student-physician starting to apply these facts in clinical work with patients. Physicians aided students by serving as role models and by talking about their experiences. Obviously, behavioral scientists could not serve as physician role models. Instead they offered support to students as individuals changing roles. In addition, behavioral scientists facilitated group discussion of the role transition and related issues while mobilizing social support from the group.

Based on the above three differences, it was concluded that the requirements for effective supervision of the two types of supervisors revealed both style and content differences. On balance, when the two differed, physicians leaned toward a more instrumental style of supervision in contrast to the behavioral scientists' more affective style. Physicians more often highlighted professional development aspects of the task. Behavioral scientists tended to underscore personal growth issues inherent in the task. With regard to substantive content, differences may be ascribed to physicians' focus on the biology of disease in contrast to behavioral scientists' attention to the psychology of illness. Both supervisors, however, emphasized that primary-care medicine requires both curing and caring.

In considering the results of this study, one should remember that the requirements for effective supervision evolved from student perceptions. While student perceptions of supervision are important, they should not be interpreted without considering the students' level of professional development. As students in a beginning practicum, they may have tended to report supervision behaviors that responded to their needs for structure and reassurance. While these behaviors would still be considered examples of effective supervision, they might relate more to student satisfaction (e.g., comfort in the situation, liking for the supervisor) than to student performance. In fact, examination of the requirements listed in Table 1 suggested that most of the student-perceived requirements seem to coincide with evaluation and support. Moreover, the specific behaviors reported were quite concrete, and focused more on substantive content and technique than on dynamic process and self-discovery. Supervisors viewing these same practicum sessions may have reported more behaviors that dealt with process issues and student performance than the sample of students reported. Further study is needed to investigate the link between student-perceived requirments for effective supervision and student performance, as well as the relationship between student- and supervisor-perceived requirements for effective supervision.

References

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TABLE 1

Latent Category Titles, Variance Accounted For, and Number of Items

Category Title	Percent of Variance	Number of Behaviors
Physician Effective		
1. Model	19.7	14
2. Teach Problem-solving	14.2	23
3. Provide Balanced Feedback	8.8	17
4. Suggest Alternatives	4.3	9
5. Identify Essentials	3.6	6
6. Prod Critical Thinking	3.2	7
7. Confront	2.8	6
Physician Ineffective		
1. Wordy	16.3	10
2. Inattentive	12.8	13
3. Uninformed	10.2	7
4. Harsh	8.7	5
5. Uncritical	5.0	6
6. Ignore Reports	4.3	5
7. Misplace Emphasis	4.0	6
Behavioral Scientist Effective		
1. Teach Interpersonal Skills	23.3	19
2. Provide Encouraging Feedback	11.6	15
3. Teach Interviewing Skills	6.9	15
4. Promote Change	5.8	10
5. Openness	5.0	5
6. Encourage and Support	3.7	11
7. Facilitate Group	3.6	9
Behavioral Scientist Ineffective		
1. Inattentive	16.3	11
2. Inappropriate Feedback	13.3	14
3. Reserved	7.5	7
4. Vague	5.9	11
5. Preoccupied	5.4	7
6. Stereotyped Thinking	4.8	3

APPENDIX

PHYSICIAN EFFECTIVE BEHAVIORS

1. Model. Inspection of the sorter's manifest categories in which these behaviors were placed revealed titles such as "modeling", "role model", "self-disclosure", "disclosure", "sharing", and "sharing experiences". Thus, the important requirement was defined as "serve as a role model by self-disclosing and sharing experiences from clinical practice". The reported behaviors constituting this category involved the supervisors talking about their own patients who were similar to the videotaped patient or using examples from practice to illustrate or clarify points. The students considered this effective behavior because it offered a realistic perspective on the relevance of interviewing skills in medical practice. Moreover, students thought the behaviors modeled psychosocial sensitivity.

2. Teach problem-solving. The underlying requirement organizing this category of supervisory behavior was "teach case problem-solving skills". The reported behaviors consisted of teaching symptom pursuit, differential diagnosis, and management planning. The students viewed these as effective behaviors because the acts reinforced and illustrated material learned in lectures.

3. Provide balanced feedback. The latent requirement for the third category was "give positive feedback together with the negative feedback". The behaviors involved adding encouraging statements to critical feedback, noting positive aspects of an interview, commenting on improvement from previous performance, and recognizing what had been learned as well as what still needed to be learned. These behaviors seemed to be valued by students because they reduced tension and built confidence.

4. Suggest alternatives. The fourth requirement was "offer specific words, actions, or questions to be tried instead of or in addition to what the student did on the tape". The behaviors constituting this category were hints, suggestions, tips, or advice on how to improve. These behaviors were judged effective by students because they encouraged students to try different techniques. Moreover, the supervisors offered these alternatives as suggestions rather than commands, thereby conveying a respect for the student's interviewing style.

5. Identify essentials. The source requirement organizing this category was "emphasize what is important". Reported behaviors included stressing what is really important to accomplish and pointing out the most pertinent information gathered during a particular interview. Students liked these behaviors because the act focused student attention or reduced anxiety by structuring the tasks.

6. Prod critical thinking. The sixth requirement of effective supervision was "demand clinical problem-solving and challenge thinking". These behaviors largely focused on reactions to student case presentations. For example, questioning the student, insisting on organized thoughts, asking students to critique their own presentation, and teaching clinical thinking techniques. Students appreciated these behaviors because the acts developed their problem-solving competence and reflected expectations for excellence.

7. Confront. The final requirement was "ask students to be honest and genuine in relating to patients". The behaviors comprising this category consisted of pointing out incongruities in student actions and helping students take responsibility for their own feelings rather than blaming patients. The students considered these behaviors effective because the behaviors made them more receptive to patients and more aware of how patients reacted to them.

PHYSICIAN INEFFECTIVE BEHAVIORS

1. Wordy. The underlying requirement of this category was "do not belabor introductions or comments". The ineffective behaviors constituting this category consisted of talking too long on the same subject or on an insignificant topic, and repeating an idea or "mini-lecture" excessively. Students view such behavior as unnecessary elaborations.

2. Inattentive. The organizing requirement was "be on time and do not talk or write while viewing videotapes". The ineffective behaviors composing this category were talking or filling in evaluation forms while a tape played and arriving late or leaving the room for a short period. Students considered these behaviors discourteous.

3. Uninformed. The requirement was "know the students and their assignments for the session". The ineffective behaviors in this category centered on unfair criticism caused by lack of familiarity with the students or the curriculum. Examples include expecting students to know things they had not been taught and criticizing students for not doing what they had not been assigned.

4. Harsh. The requirement was "do not overlook successes and positive accomplishments". The ineffective behaviors in this category shared the theme of focusing exclusively on mistakes while not providing reassurance or encouragement.

5. Uncritical. This category was the opposite of the prior one. The requirement was "do not overlook errors or shortcomings". The ineffective behaviors constituting this category were denying or ignoring student incompetence and being overly diplomatic in providing feedback on errors.

6. Ignore reports. The requirement for this category was "do not neglect written reports". Students judged failing to return write-ups, or returning them without verbal or written feedback, to be ineffective supervisory behavior.

7. Misplace emphasis. The requirement reflected by this category was "do not concentrate on minor details". Students thought that emphasizing minor points, attending to picky details, and wandering off the topic were ineffective behaviors because these actions misrepresent the essentials of successful interviewing.

BEHAVIORAL SCIENTIST EFFECTIVE BEHAVIORS

1. Teach interpersonal skills. The underlying requirement for this category was "teach how to use verbal and non-verbal cues to understand and classify patients". The behaviors constituting this category included instruction in how to observe and analyze patient behavior during an interview and advice on how to deal with certain types of patients.

2. Provide encouraging feedback. The requirement underlying this category was "provide encouraging feedback on interviewing techniques". The specific behaviors consisted of recognizing improvements, emphasizing positive points, and offering tips on how to improve. Students appreciated these behaviors because they reflected a supportive attitude.

3. Teach interviewing skills. The requirement for this category was "teach interviewing skills by explaining and modeling alternative approaches". Representative behaviors in this group included giving alternatives to inappropriate behavior, changing closed questions into open ones, and pointing out more effective actions than the one used. Students considered these behaviors effective because the instructions were specific and concrete.

4. Promote change. The underlying requirement for this category was "encourage

skill development through constructive criticism and positive reinforcement". Behaviors that students thought facilitated change and experimentation consisted of offering corrective criticism while noting achievements and reinforcing effort.

5. Openness. This category was the only one in the study that was difficult to interpret. Only five items had significant category membership coefficients. The two behaviors with the highest coefficients involved the supervisors self-disclosing problems they had in learning interviewing skills. The remaining three behaviors dealt with asking open questions, avoiding double questions, and asking direct questions. Admittedly, construing an organizing requirement influencing all five behaviors was difficult. Nevertheless, a requirement organizing these behaviors will be offered: "model openness and teach how to promote patient openness".

6. Encourage and support. The requirement underlying this category was "encourage and support students as persons learning a profession". The behaviors forming this group were focusing on students' feelings about their skills, maintaining eye contact, using first names, promoting self-exploration, and accepting an occasional "bad day". Students considered these effective behaviors because the actions reflected empathy for students adopting the physician's role.

7. Facilitate group. This category's requirement was "elicit affective and open communication among students". The effective behaviors consisted of noticing nonverbal communication, nurturing friendships among the students, promoting group discussion, and encouraging self-disclosure and honesty. Students appreciated these acts because the acts tapped the potential of a "group experience".

BEHAVIORAL SCIENTIST INEFFECTIVE BEHAVIORS

1. Inattentive. The requirement and specific behavior were the same as Category 2 for ineffective behaviors by physician supervisors.

2. Inappropriate feedback. The requirement organizing this category of ineffective behavior was "do not misquote, prematurely criticize, or feel compelled to comment". Behaviors in this group seemed to be interpreted by students as "overeagerness" to criticize.

3. Reserved. The requirement influencing this category was "do not be apprehensive in offering criticisms on unsatisfactory actions or portions of a tape". The behaviors included not talking much or not commenting on negative aspects of a student's performance. Students perceived reserved supervisors as being timid, apprehensive about being critical, or intimidated by their co-supervisor.

4. Vague. The requirement organizing this category was "do not be vague, abstract, or nonspecific". Behaviors constituting this category were commenting on a tape as a whole, criticizing an action without suggesting how to do it differently, and vague or general answers to specific questions. Students thought these behaviors reflected lack of active participation rather than lack of expertise.

5. Preoccupied. The requirement underlying this category was "do not be preoccupied or easily distracted". The behaviors involved not concentrating on the task or being easily distracted. Students recognized that supervisors had other duties and responsibilities. Nevertheless, they wished supervisors would fully concentrate on the task at hand.

6. Stereotyped thinking. The requirement generating this category was "do not overanalyze or stereotype patients". The behaviors included overinterpreting a patient's behavior, classifying people rather than their behavior, and characterizing patients in a restrictive manner.